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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/505,370	08/23/2004	Markus Scherer	255880US0PCT	7127

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EXAMINER
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BERNSHTEYN, MICHAEL

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 10/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/505,370	Applicant(s) SCHERER ET AL.	
	Examiner Michael Bernshteyn	Art Unit 1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_ is/are rejected.
- 7) ☒ Claim(s) 1-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>08/23/2004</u> | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

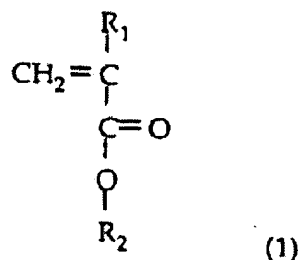
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Schauber (EP 0682 046 A1).

Schauber discloses a copolymer comprising (meth) acrylate monomers and styrenic monomer(s) in an oil soluble diluent to form a solution of the copolymer in the oil soluble diluent, and wherein the solution includes less than or equal to 1000 parts by weight residual styrene monomer(s) per one million parts by weight solution (abstract).

With regard to the limitations of instant claims 1-8, Schauber discloses the monomer mixture comprising (col. 1, line 45 through col. 3, line 3):

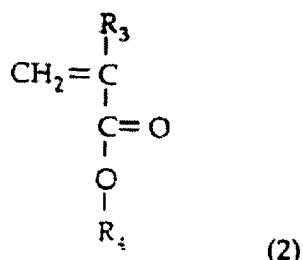
From about 5 parts by weight (pbw) to about 70 pbw of one or more (meth) acrylate monomer having the structural formula (1):



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wherein: each  $R_1$  is independently H or  $CH_3$ ; and each  $R_2$  is independently selected from  $(C_{18}-C_{24})$  alkyl;

from about 5 pbw to about 85 pbw of one or more(meth) acrylate monomer having the structural formula (2):



wherein: each  $R_1$  is independently H or  $CH_3$ ; and each  $R_2$  is independently selected from  $(C_7-C_{15})$  alkyl; and

from about 5 pbw to about 50 pbw of one or more styrenic monomer; and

b). polymerizing from about 2 pbw to about 20 pbw, for example from about 2 pbw to about 10 pbw, additional (meth)acrylate monomer(s) per 100 pbw of the combined (meth)acrylate monomers of formulae (1) and (2) of the monomer mixture, said additional (meth)acrylate monomer(s) comprising one or more (meth)acrylate monomer of formula (1), one or more (meth)acrylate monomer of formula (2), or a mixture thereof, in the presence of the polymerization intermediate, provided that the combined monomers of the monomer mixture and additional monomer(s) comprise from about 5 wt% to about 70 wt% of the (meth)acrylate monomer(s) of formula (1), from about 5 wt% to about 85 wt% of the (meth)acrylate monomer(s) of formula (2) and from about 5 wt% to about 50 wt% of the styrenic monomer(s), to provide a solution of from about 30 weight percent to about 90 weight percent of a viscosity index improving copolymer in the dilu-

ent, said solution including less than or equal to 1000 pbw residual styrene monomer(s) per 1,000,000 pbw solution.

Both formulas (1) and (2) are substantially identical to the claimed formulas A and B.

With regard to the limitations of instant claim 9, Schauber discloses that a weight average molecular weight is from about 20,000 to about 500,000, which is within the claimed range (col. 7, lines 12-16).

With regard to the limitations of instant claim 10, Schauber discloses the method for preparing the polymer composition using batch process, which is substantially identical to the claimed process (col. 5, line 36 through col. 6, line 23).

With regard to the limitations of instant claims 11-20, Schauber discloses that the polymer solution is useful as an additive composition for improving the viscosity of lubricating oil. The copolymer may be added in the form of the above-disclosed additive composition, to a lubricating oil base stock, e.g. a paraffinic solvent neutral oil, to provide a lubricating oil composition having the desired viscometric properties. Suitable lubricating oil base stocks include paraffinic and naphthenic neutral oils.

Such lubricating oil composition comprises from about 2 pbw to about 20 pbw of the copolymer (on the basis of polymer solid) per 100 pbw lubricating oil base stocks, which is within the claimed range (col.7, lines 31-56).

Therefore all the limitations of claims 1-20 are expressly met by Schauber.

2. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Neunier et al. (U. S. Patent 4,758,365)

With regard to the limitations of instant claim 1, Neunier discloses polymeric additives useful for inhibition of the deposit of paraffins and improvement of the flow

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properties of crude oils and to compositions containing crude oils and such additives.

The polymeric additive consists of a polymer formed by units derived from one or more alkyl esters of unsaturated monocarboxylic acids, one or more unsaturated alpha, beta-dicarboxylic compounds in the form of diacids, low alkyl diesters or anhydrides and one or more monomers having ethylenic unsaturation of the general formula  $\text{CH}_2=\text{CZ}_1\text{Z}_2$ , in which  $\text{Z}_1$  and  $\text{Z}_2$  are the same or different and represent hydrogen, a halogen, a saturated, unsaturated or aromatic hydrocarbon group or an ester or ether group.

Compounds containing a crude oil and 5 to 4000 ppm and preferably 100 to 1500 ppm of the additive have much improved flow properties (abstract).

This formula is substantially identical to the claimed formulas A and B.

With regard to the limitations of instant claim 2, Neunier discloses that the additive is a polymer which contains by weight 20% to 99% and preferably 60% to 90% of units derived from one or more alkyl esters of unsaturated monocarboxylic acids, 0.5% to 40% and preferably 5% to 20% of units derived from one or more unsaturated alpha,beta-dicarboxylic compounds and 0.5% to 40% and preferably 5% to 20% of units derived from one or more monomers having ethylenic unsaturation of the general formula (col. 2, lines 28-38).

With regard to the limitations of instant claims 3-8, Neunier discloses that among alkyl esters of unsaturated monocarboxylic acids, use is preferably made of long straight-chain n-alkylacrylates and methacrylates, ranging in general from  $\text{C}_{12}$  to  $\text{C}_{30}$ . These esters can be obtained by the reaction of acrylic or methacrylic acid or their esters with straight chain aliphatic alcohols having at least 12 carbon atoms. The upper

limit of 30 carbon atoms is imposed by the chain length of the aliphatic alcohols at present available commercially. Available aliphatic alcohols are mixtures of alcohols of different chain lengths, the distribution of which is in general in the following ranges by weight:

$$0 < C_{12} - C_{16} < 10\%$$

$$0 < C_{16} - C_{18} < 40\%$$

$$50 < C_{20} - C_{22} < 100\%$$

$$0 < C_{24} - C_{30} < 10\% \text{ (col. 3, lines 40-60).}$$

With regard to the limitations of instant claim 9, Neunier discloses that the molecular weight of the polymer can range from 5,000 to 300,000 and is preferably in the range from 20,000 to 150,000, which is within the claimed range (col. 3, lines 53-55).

With regard to the limitations of instant claims 10, 13 and 18, Neunier discloses that polymerization can be effected in the mass, i.e. without a solvent, or also in an organic solvent in which both the monomers and the copolymer are soluble. Among these solvents, reference can be made to hydrocarbon solvents of aliphatic or aromatic structure, which are chemically inert vis-a-vis the monomers. The preferred solvents are, for example, **xylene** or **toluene** or a cut of aromatic character (col. 3, lines 21-29).

With regard to the limitations of instant claims 11, 12, 14, 16, 17 and 19, Neunier discloses a method for inhibiting the crystallization of paraffins in crude oils which comprises adding to said crude oils a paraffin crystallization-inhibiting amount of the polymeric additive of claim 1 (claim 19, col. 10, lines 7-10).

With regard to the limitations of instant claims 15 and 20, Neunier discloses that the additive is incorporated in crude oils in a concentration by weight ranging from 5 to 4,000 ppm and preferably from 100 to 1,500 ppm, which is within the claimed range (col. 3, lines 58-61, Example 1, col. 4, lines 35-55).).

Therefore all the limitations of claims 1-20 are expressly met by Neunier.

3. Claims 1-8, 10, 15 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Esso Co. (GB 906, 412).

With regard to the limitations of instant claims 1-6, 8 and 10, GB'412 discloses a process for preparing oil-soluble copolymers of one or more esters (A) of an  $\alpha,\beta$ -unsaturated dicarboxylic acid and a heavy alcohol and one or more eaters (B) of such an acid and a light alcohol, which consists in carrying out the copolymerization in two stages (claim 1, page 5, lines 18-30). GB'412 discloses the same monomers (pages 1 and 2), the method of polymerization for the preparation additives for lubricating oil as instantly claimed (page 2, lines 110-130).

With regard to the limitations of instant claim 7, GB'412 discloses that the copolymer consists of from 40 to 60% by weight of esters (A) and correspondingly from 60 to 40% by weight of esters (B) which is within the claimed range (claim 7, page 6, lines 11-14).

With regard to the limitations of instant claim 15 and 20, GB'412 discloses a lubricating composition comprising a lubricate oil and from 0.01 to 20% by weight of copolymer, which is within the claimed range (claim 14, page 6, lines 37-39).



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4. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Liesen et al. (EP 1 086 964 A2)

With regard to the limitations of instant claims 1-8 and 10, Liesen discloses a polyalkyl (meth)acrylate copolymer obtainable by polymerizing a monomer composition comprising: (A) from about 5 to about 60 weight percent of C<sub>11</sub>-C<sub>15</sub> alkyl(meth) acrylate; and (B) from about 95 to about 40 weight percent of a C<sub>16</sub>-C<sub>30</sub> alkyl(meth) acrylate. This composition can be effective as a pour point depressant and can also improve the low temperature viscosity of an oil lubricating viscosity (abstract, Example 9, pages 9-10, [0071]).

With regard to the limitations of instant claim 9, Liesen discloses that the number average molecular weight of the polymer can range from 20,000 to 150,000 and is preferably in the range from 30,000 to 110,000, which is within the claimed range (page 5, [0039]).

5. It is worth to mention that Examiner has cited particular columns and line numbers or figures in the references as applied to the claims for the convenience of the applicant. Although the specified citations are representative of the teaching in the art and are applied to the specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant, in preparing the responses, **to fully consider the references in entirety as potentially teaching all or part of the claimed invention**, as well as the context of the passage as taught by the prior art or disclosed by the examiner.

**Conclusion**

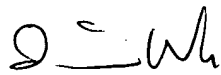
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Bernshteyn whose telephone number is 571-272-2411. The examiner can normally be reached on M-F 8-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Patent Examiner  
Art Unit 1713

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09/28/2006

  
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